

Trend Study 13A-14-99

Study site name: Lower Lackey Fan .

Range type: Sage-Grass (sprayed) .

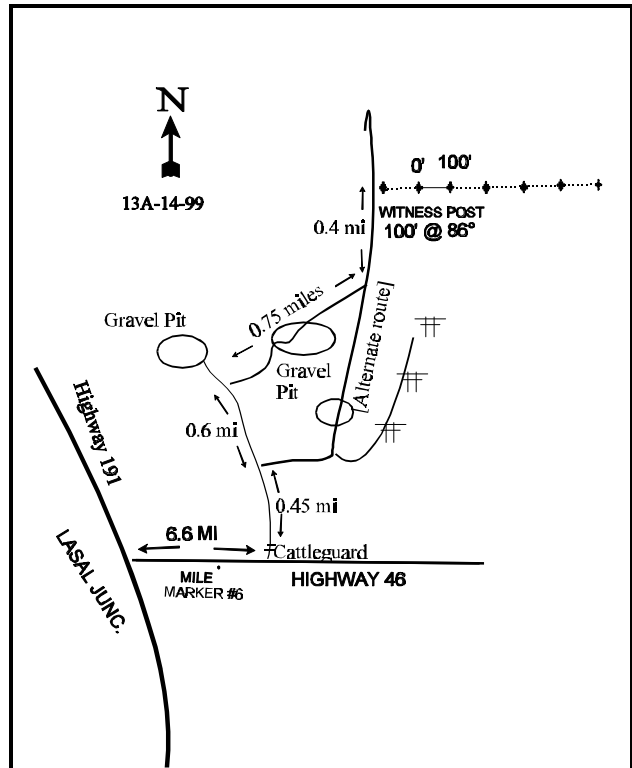
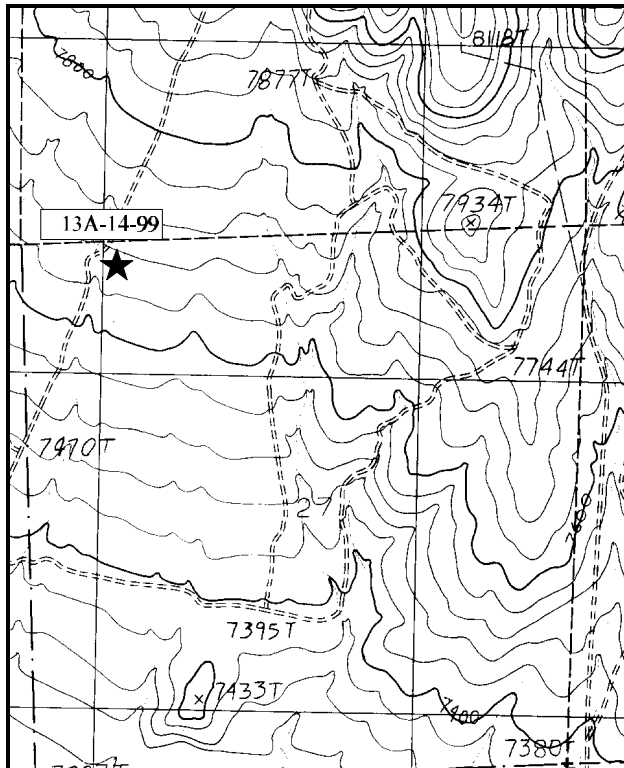
Compass bearing: frequency baseline 86°M.

Footmark (first frame placement) 5 feet, footmarks (frequency belts) line 1 (11ft), line 2 (34ft), line 3 (59ft), line 4 (71ft), line 5(95 ft).

LOCATION DESCRIPTION

From LaSal Junction travel east on Highway 46 to mile marker #6. Continue 0.60 miles from mile marker #6 and turn left (north) onto a dirt road. Go 0.45 miles to where the road forks and stay left on the main road. Continue 0.60 miles to where the road splits towards several gravel pits. Take the right fork and follow the road on the edge of the pit to where the road goes up and out of the pit. From here, travel 0.4 miles to a fork. Turn left and continue another 0.4 miles to a witness post. The 0-foot stake is found 100 feet away at a bearing of 86°M. Browse tag #200 marks the start of the baseline.

If there is no access through the gravel pit, an alternate exists. Refer to map below for this route



Map Name: LaSal West

Diagrammatic Sketch

Township 28S , Range 24E , Section 27

UTM 4243960.231 N, 650438.169 E

DISCUSSION

Trend Study No. 13A-14 (33-14)

The Lower Lucky Fan site is a new study (1994) that is located on the lower southwest slopes of the LaSal Mountains at 7,700 feet in elevation. It is on a fairly flat ridge with scattered pinyon (6 trees/acre and average diameter of almost 4 inches) and juniper (6 trees/acre and average diameter of 5.75 inches) with a moderate density of Wyoming big sagebrush and fairly abundant crested wheatgrass. The sagebrush in the past has been sprayed and seeded to crested wheatgrass. This new area is thought to be particularly important to elk during the winter. The pellet group transects read on site in 1999 showed 12 cow days use/acre (30 cdu/ha), 20 deer days use/acre (49 ddu/ha), and 34 elk days use/acre (84 edu/ha).

The site has a moderately deep (effective rooting depth of almost 11 inches), reddish-brown, sandy clay loam soil with abundant rock in the profile and on the surface. The soil reaction is neutral (7.2 pH). Phosphorous could be a limiting factor on the site as it is 8.1 ppm where 10 ppm is considered minimal for normal plant development. The soil has a combined rock cover of 19% (rock 16% and pavement 3%) with a relatively low litter cover (37%). Percent bare ground (24%) is not as high as some other sagebrush/grass sites with a scattered population of pinyon and juniper. There is some evidence of soil movement, but this is mitigated by the lack of a steep slope.

The scattered pinyon and juniper provides some valuable cover for wintering animals during critical periods of winter. The key browse species is Wyoming big sagebrush with a moderate density of 3,880 plants/acre (1999). The population appears to be in a slightly downward trend with biotic potential going from 86% to 14%, percent young declining from 36% to 19%, and the percentage of mature plants increasing to 52%. Additionally, the proportion of the population that is classified as dead has gone from 5% to 14%, and the population has decreased by 21%. Strip frequency also shows this trend with a decrease from 86% in 1994 to 73% in 1999. A very low density of bitterbrush are scattered throughout the community. The increaser, broom snakeweed, in 1994 showed indications that it was increasing. Its density has increased greatly since then. Its estimated density has gone from 1,800 plants/acre to 20,060 plants/acre. Another way to interpret the changes is to look at how the proportion of the browse cover contributed by Wyoming big sagebrush and broom snakeweed has changed. Sagebrush made up 82% of the browse cover in 1994, now it only makes up 42%. For broom snakeweed, it initially contributed 6% of the browse cover, now it makes up 35% of the browse cover.

The herbaceous understory is primarily composed of grasses which make up, on average, 91% of the herbaceous cover. There are primarily only two grass species found on the site, crested wheatgrass and cheatgrass. Crested wheatgrass provided a little more than half as much cover as the Wyoming big sagebrush in 1994, now contributes more cover than sagebrush. Cheatgrass increased in nested frequency in 1999, but not significantly. Forbs were diverse in 1994, although nearly half were small, annual species. Only 5 species were sampled in 1999. All together, forbs provided only 2% of the plant cover in 1994, now they provide less than 1% cover.

1994 TREND ASSESSMENT

Because it is a new site there is no previous data to compare with. Inasmuch as the herbaceous species provide nearly 50% of the vegetative cover and percent bare ground is 29%, the soil on the site is considered stable, but only in fair condition. The apparent browse trend is considered up with the excellent biotic potential, good age class distribution and moderately low percentage of decadent plants. The herbaceous understory is stable, but the percentage of annual grass should be watched closely, for any increase would indicate a downward trend for the site.

TREND ASSESSMENT

soil - stable, but only fair condition

browse - up, but any increases for broom snakeweed should be watched closely

herbaceous understory - stable, annual grasses should be monitored closely

1999 TREND ASSESSMENT

The trend for soil is slightly improved, but still in poor condition. The decrease in bare soil is mostly because of increases in cheatgrass and snakeweed cover, both increasers. The browse trend has taken an unexpected turn downward as sagebrush has experienced decreases in cover, biotic potential, and the percentage of young in the population. The population density has also decreased by 21% as shown by the decrease in strip frequency. Also, increases in decadency and the percent of the population classified as dead point to a downward trend. There has also been an unusually large increase in the broom snakeweed population. The herbaceous understory is somewhat mixed. There have been increases for crested wheatgrass, but increases for cheatgrass as well. The forbs only made up 17% of the herbaceous cover in 1994, but have since been reduced to less than 1% of the herbaceous cover. Overall, trend is up for the herbaceous species, however the annual grass component should be watched closely as further increases would probably mean losses of other herbaceous species and a reduction in the number of sagebrush seedlings becoming established.

TREND ASSESSMENT

soil - slightly improved, but only fair condition

browse - down, but any further increases of broom snakeweed should be monitored closely

herbaceous understory - up, however annual grasses should be monitored closely

HERBACEOUS TRENDS --

Herd unit 13A, Study no: 14

Type	Species	Nested Frequency		Quadrat Frequency		Average Cover %	
		'94	'99	'94	'99	'94	'99
G	Agropyron cristatum	225	*309	67	86	7.54	10.15
G	Bromus tectorum (a)	175	206	50	59	3.18	3.51
G	Vulpia octoflora (a)	-	*8	-	4	-	.02
Total for Annual Grasses		175	214	50	63	3.18	3.53
Total for Perennial Grasses		225	309	67	86	7.54	10.15
Total for Grasses		400	523	117	149	10.73	13.69
F	Astragalus convallarius	24	*3	13	2	.14	.01
F	Chenopodium spp. (a)	11	*-	5	-	.02	-
F	Comandra pallida	24	*-	12	-	.06	-
F	Collinsia parviflora (a)	26	*4	8	1	.09	.00
F	Cryptantha nevadensis	39	*-	12	-	.06	-
F	Cryptantha spp.	20	*-	9	-	.04	-
F	Dalea searlsiae	2	-	1	-	.00	-
F	Descurainia pinnata (a)	14	*-	5	-	.02	-
F	Draba nemorosa (a)	42	*-	16	-	.08	-
F	Erigeron pumilus	-	-	-	-	-	.00

T y p e	Species	Nested Frequency		Quadrat Frequency		Average Cover %	
		'94	'99	'94	'99	'94	'99
F	Gayophytum ramosissimum (a)	22	*-	9	-	.04	-
F	Gilia spp. (a)	18	*-	8	-	.04	-
F	Heterotheca villosa	-	4	-	2	-	.03
F	Ipomopsis aggregata	2	1	1	1	.00	.00
F	Machaeranthera spp	1	-	1	-	.00	-
F	Microsteris gracilis (a)	60	6	20	3	.32	.01
F	Oxybaphus linearis	2	-	2	-	.01	-
F	Phlox longifolia	3	-	2	-	.01	-
F	Ranunculus testiculatus (a)	158	*-	44	-	.73	-
F	Salsola iberica (a)	3	-	2	-	.01	-
F	Schoenocrambe linifolia	27	*-	10	-	.07	-
F	Sisymbrium altissimum (a)	-	-	-	-	.00	-
F	Sphaeralcea coccinea	5	*-	1	-	.38	-
F	Tragopogon dubius	5	-	3	-	.01	-
F	Trifolium spp.	3	-	1	-	.03	-
Total for Annual Forbs		354	10	117	4	1.37	0.01
Total for Perennial Forbs		157	8	68	5	0.84	0.05
Total for Forbs		511	18	185	9	2.22	0.07

* Indicates significant difference at % = 0.10

BROWSE TRENDS --

Herd unit 13A, Study no: 14

T y p e	Species	Strip Frequency		Average Cover %	
		'94	'99	'94	'99
B	Artemisia tridentata wyomingensis	86	73	12.07	9.84
B	Chrysothamnus depressus	0	1	-	-
B	Eriogonum microthecum	1	0	-	-
B	Gutierrezia sarothrae	37	73	.82	8.06
B	Juniperus osteosperma	0	1	-	-
B	Leptodactylon pungens	0	0	-	-
B	Pinus edulis	0	1	-	3.75
B	Purshia tridentata	1	4	.15	.15
B	Quercus gambelii	-	-	-	.15
B	Yucca spp.	6	7	1.60	1.31
Total for Browse		131	160	14.64	23.26

CANOPY COVER --

Herd unit 13A, Study no: 14

Species	Percent Cover	
	'94	'99
Pinus edulis	-	5
Quercus gambelii	-	4

BASIC COVER --

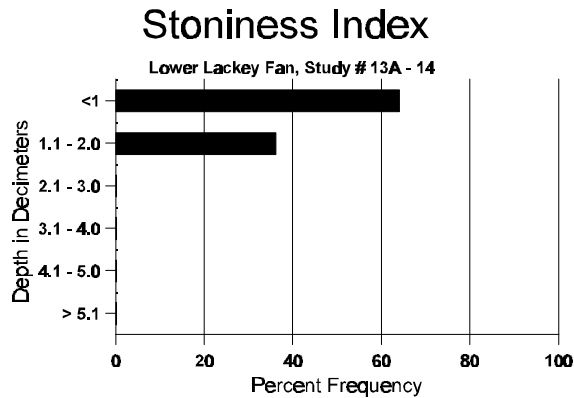
Herd unit 13A, Study no: 14

Cover Type	Nested Frequency		Average Cover %	
	'94	'99	'94	'99
Vegetation	423	417	27.73	34.18
Rock	270	248	12.83	15.93
Pavement	242	220	1.11	3.06
Litter	479	451	31.20	36.69
Cryptogams	14	71	.06	1.40
Bare Ground	370	329	28.67	23.90

SOIL ANALYSIS DATA --

Herd Unit 13A, Study # 14, Study Name: Lower Lackey Fan

Effective rooting depth (cm)	Temp °F (depth)	pH	%sand	%silt	%clay	%OM	PPM P	PPM K	dS/m
10.7	61.8 (12.5)	7.2	52.9	25.8	21.3	2.1	8.1	76.8	0.5



PELLET GROUP FREQUENCY --

Herd unit 13A, Study no: 14

Type	Quadrat Frequency		Days Use per Acre (Hectare)
	'94	'99	
Rabbit	17	21	N/A
Elk	30	21	34
Deer	1	16	20
Cattle	-	8	12

BROWSE CHARACTERISTICS --

Herd unit 13A, Study no: 14

A G R E	Y R	Form Class (No. of Plants)										Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4					
Artemisia tridentata wyomingensis																			
S	94	177	35	-	-	-	-	-	-	-	147	-	-	65	4240			212	
	99	20	8	-	-	-	-	-	-	-	28	-	-	-	560			28	
Y	94	84	4	-	-	-	-	-	-	-	88	-	-	-	1760			88	
	99	27	8	-	1	-	-	-	-	-	35	-	1	-	720			36	
M	94	90	12	4	1	-	-	-	-	-	99	1	7	-	2140	25	36	107	
	99	30	54	17	-	-	-	-	-	-	99	2	-	-	2020	20	28	101	
D	94	46	4	-	-	1	-	-	-	-	20	5	-	26	1020			51	
	99	6	35	8	2	4	1	1	-	-	47	-	-	10	1140			57	
X	94	-	-	-	-	-	-	-	-	-	-	-	-	-	260			13	
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	700			35	
% Plants Showing		<u>Moderate Use</u>					<u>Heavy Use</u>					<u>Poor Vigor</u>				<u>%Change</u>			
'94		09%					02%					13%				-21%			
'99		52%					13%					06%							
Total Plants/Acre (excluding Dead & Seedlings)												'94	4920	Dec:	21%				
												'99	3880		29%				
Chrysothamnus depressus																			
M	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	
	99	1	-	-	-	-	-	-	-	-	1	-	-	-	20	3	6	1	
% Plants Showing		<u>Moderate Use</u>					<u>Heavy Use</u>					<u>Poor Vigor</u>				<u>%Change</u>			
'94		00%					00%					00%							
'99		00%					00%					00%							
Total Plants/Acre (excluding Dead & Seedlings)												'94	0	Dec:	-				
												'99	20		-				
Eriogonum microthecum																			
M	94	2	-	-	-	-	-	-	-	-	2	-	-	-	40	9	11	2	
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	
% Plants Showing		<u>Moderate Use</u>					<u>Heavy Use</u>					<u>Poor Vigor</u>				<u>%Change</u>			
'94		00%					00%					00%							
'99		00%					00%					00%							
Total Plants/Acre (excluding Dead & Seedlings)												'94	40	Dec:	-				
												'99	0		-				

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total	
		1	2	3	4	5	6	7	8	9	1	2	3	4					
Gutierrezia sarothrae																			
S	94	86	-	-	-	-	-	-	-	-	86	-	-	-	1720		86		
	99	44	-	-	-	-	-	-	-	-	44	-	-	-	880		44		
Y	94	26	-	-	-	-	-	-	-	-	26	-	-	-	520		26		
	99	281	5	-	-	-	-	-	-	-	286	-	-	-	5720		286		
M	94	61	-	-	-	-	-	-	-	-	61	-	-	-	1220	10	10		
	99	701	-	-	-	-	-	-	-	-	701	-	-	-	14020	11	11		
D	94	3	-	-	-	-	-	-	-	-	2	-	-	1	60		3		
	99	14	2	-	-	-	-	-	-	-	10	-	-	6	320		16		
X	94	-	-	-	-	-	-	-	-	-	-	-	-	-	60		3		
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	100		5		
% Plants Showing		<u>Moderate Use</u>					<u>Heavy Use</u>					<u>Poor Vigor</u>				<u>%Change</u>			
'94		00%					00%					01%				+91%			
'99		.69%					00%					.59%							
Total Plants/Acre (excluding Dead & Seedlings)												'94	1800	Dec:	3%				
												'99	20060		2%				
Juniperus osteosperma																			
Y	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0		
	99	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1		
% Plants Showing		<u>Moderate Use</u>					<u>Heavy Use</u>					<u>Poor Vigor</u>				<u>%Change</u>			
'94		00%					00%					00%							
'99		00%					00%					00%							
Total Plants/Acre (excluding Dead & Seedlings)												'94	0	Dec:	-				
												'99	20		-				
Leptodactylon pungens																			
M	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-		
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0	9	7		
% Plants Showing		<u>Moderate Use</u>					<u>Heavy Use</u>					<u>Poor Vigor</u>				<u>%Change</u>			
'94		00%					00%					00%							
'99		00%					00%					00%							
Total Plants/Acre (excluding Dead & Seedlings)												'94	0	Dec:	-				
												'99	0		-				
Pinus edulis																			
M	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-		
	99	-	-	-	-	-	-	1	-	-	1	-	-	-	20	-	1		
% Plants Showing		<u>Moderate Use</u>					<u>Heavy Use</u>					<u>Poor Vigor</u>				<u>%Change</u>			
'94		00%					00%					00%							
'99		00%					00%					00%							
Total Plants/Acre (excluding Dead & Seedlings)												'94	0	Dec:	-				
												'99	20		-				

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Purshia tridentata																		
M	94	1	-	-	-	-	-	-	-	-	1	-	-	-	20	13	27	1
	99	1	-	3	-	-	-	-	-	-	4	-	-	-	80	17	35	4
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'94		00%			00%			00%			+75%							
'99		00%			75%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'94	20	Dec:	-			
												'99	80		-			
Yucca spp.																		
Y	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	99	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
M	94	18	-	-	-	-	-	-	-	-	18	-	-	-	360	24	38	18
	99	20	-	-	-	-	-	-	-	-	20	-	-	-	400	18	29	20
X	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	40			2
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'94		00%			00%			00%			+18%							
'99		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'94	360	Dec:	-			
												'99	440		-			